

Part 1...“The Weather Primer” 0800-1200

*This three hour and half hour session will introduce mariners to weather 101 basics, starting with definitions of weather, climatology and the atmosphere. There will be a brief discussion of the different layers of the atmosphere, focusing on the lowest layer, the troposphere, where most weather occurs.

*An important discussion will focus on how the atmosphere is heated, and its interaction with the earth’s surface (land and water). This then leads into the important topic of the role of the sun’s radiation in generating the land and sea breezes, due to the temperature differences caused between the land and nearby coasts lines versus offshore. As a mariner it is important to relate to these land-sea temperature differences as it influences weather in a fairly narrow range where much sailing and power boating takes place.

*Other important topics include how clouds form, the cloud groups & types of clouds found within each group. Clouds produce precipitation but not all precipitation is equal as well as the clouds that produce them will be touch upon.

*The morning session will conclude with basic concepts of pressure and wind, how it works to produce the foundation of reading weather maps...from surface pressure analyses and forecasts to upper air charts (such as 500 Millibars-Mb).

*Attendees of this three-hour “**Weather Primer**” will allow one to gain confidence with necessary basic weather fundamentals in order to better understand the weather maps discussed in detail in the afternoon “**Part 2**” session (both marine surface & upper air weather analyses and forecast charts).

Part 2...“Understanding Surface Weather Maps and their Symbols 1300-1630

*With the “**The Weather Primer**”, under your belt, be prepared to enter the world of marine weather analysis and forecasts charts!

*We will first look at “Scales of Weather Systems” (Global Scale-Jet Stream Patterns; Synoptic Scale- Lows & Highs: Meso-scale- squall lines, Micro Scale; thunderstorms/micro-bursts/waterspouts). Global Scale is also about “Global Pressure & Wind Belts”, such as the ‘prevailing westerlies’ that dominates the “middle latitudes (between 30 to 60 degrees)” where the Great Lakes are located. In this course we will concentrate on the meat and potatoes of most weather which is “Synoptic Scale Systems” of High and Low Pressure, along with their associated fronts (warm, cold and occluded), especially since the do dominate the middle latitudes, well within the region of the Great Lakes, & extending south to the Gulf of Mexico, east to the US east coastal waters from Nova Scotia to Florida, further offshore, eastward to Bermuda before moving onto the higher latitudes of the north Atlantic Ocean to Europe. We will also discuss features such as troughs, squall lines, and ridges & their identifiable symbols depicted on surface pressure charts prepared by the National Weather Service’s (NWS) Ocean Prediction Center (OPC), the Weather Prediction Center (WPC) & the National Hurricane Center’s (NHC) Tropical Analysis and Forecast Branch (TAFB,). These are all important line offices of the NWS located in College Park, MD, & Miami, FL, respectively.

*It is vitally important to understand the importance of documentation and verification of forecasts. This builds confidence and trusts in marine weather forecasts. Lee will take you through this cultural process by comparing surface pressure forecasts (48-96 hours) to the most current surface pressure analysis charts, having the same valid date and time. One must a built in culture of belief in the human intelligence forecasts discussed and promoted in this course (at least, a medium degree of confidence, in order to make safety decision & strategic planning).

*The day will conclude with a Question & Answer session until 5:00 PM.